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Trade Competitiveness of Oilseeds and Oils in India

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ABSTRACT

To understand the trade competitiveness of oilseeds and oils in India, secondary data on domestic prices and border prices or reference prices of oilseeds and oils were collected for a period of 26 years i.e., from 1990-91 to 2015-16. Nominal protection coefficient was used for analyzing the trade competitiveness for selected oilseeds and oils. The results revealed that India has moderate export competitiveness in case of soybean and castor oil, while it has moderate import competitiveness in case of groundnut and sunflower. Therefore, emphasis has to be laid on export quality of groundnut, castor oil, soybean and sunflower by providing high quality seeds by creating awareness to farmers on latest agronomic practices.

Key words*: Competitiveness, Oilseeds.*

India is one of the largest producer and consumer of vegetable oils in the World. Indian vegetable oil economy is the fourth largest in the world next to USA, China and Brazil. Oilseed crops play a significant role in the Indian agricultural economy next to food grains in terms of area and production. The Indian climate is suitable for the cultivation of oilseed crops; therefore, large varieties of oilseeds are cultivated here. The major oilseeds cultivated in India are Groundnut, Rapeseed and Mustard, Linseed, Castor, Sesame, Soybean, Sunflower, Safflower and Niger. However, Groundnut, Rapeseed and Mustard, Soybean and Sunflower account for a major chunk of the output. At present, more than 27 million hectares of land is under oilseeds cultivation in India. The area under oilseeds has been increasing over time and the production has registered many fold increase but its productivity is still low as compared to other oilseed producing countries in the world (Narayan *et al*. 2011). The low and fluctuating productivity is primarily due to the cultivation of oilseed crops in marginal lands, which are lacking irrigation and providing low levels of inputs. To improve the situation of oilseeds in the country, Government of India has been pursuing several development programs viz., Oilseed Growers Cooperative Project, National Oilseed and Development Project, Technology Mission on Oilseeds and Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize. The concerted efforts of these development programs/schemes register significant improvement in annual growth of yield and area under oilseed crops. However, India still imports a significant proportion of its requirement of edible oil. The Technology Mission on Oilseeds adopted a four - pronged strategy in order to harness the best of production, processing and storage technologies for attaining self-reliance in vegetable oils. The mission initiated corporatization and modernization process in the oilseed sector. The efforts resulted in significant growth in the production of oilseed during the period 1986 to 2011 and the highest growth observed in case of soybean and sunflower oilseeds. The area under total nine oilseed crops registered growth of 4.3 per cent and production registered growth of around 8 per cent, which is highest since independence. Both area expansion and technology improvement contributed equally to attain this growth in oilseed crops. India was about to attain self-sufficiency during the mission period and import of edible oils reduced to merely 6 per cent of total agricultural imports in value terms. The expansion of irrigation facilities and transfer of new technologies helped to obtain the desired results.

India has a comparative advantage in agriculture, and there is a considerable potential in raising farm income and employment by stepping up agro-based exports. Economic integration and trade liberalization of oil seeds will have a great impact on the national economy in general, and on the agricultural sector in particular. It will be a good opportunity to expand markets and acquire

advanced technologies of oil seeds and oils by knowing the trade competitiveness. Hence, the main objective of the study is to analyze the trade competitiveness of oil seeds and oils in India. The following sections present the methodology of the study with analytical tools, results and discussion, concluding with policy implication.

MATERIAL AND METHODS

Competitiveness is the ability of a nation to grow successfully and to maintain its share of world trade. The trade competitiveness of oilseeds and oils in the present study was assessed by using the Nominal Protection Coefficient (NPC). NPC was the simplest indicator of domestic protection and trade competitiveness. The coefficients were computed to determine the extent of competitive advantage enjoyed by the commodity in the context of free trade. The coefficients shed light on whether a country was comparative enough in the export / import of that commodity in a free trade scenario (or) not. NPC is the ratio of domestic price to the border price (or) reference price. The trade competitiveness was measured by two types of hypotheses, that is (a) exportable hypothesis and (b) importable hypothesis. The NPC was calculated based on the data from www.fao.org, agricultural prices in India year books, agmarknet.gov.in and http://data.gov.in from 1990-91to2015-16. The commodities selected for the study include groundnut seed and oil, rapeseed mustard and oil, linseed oil, castor oil, soybean seed and oil and sunflower seed and oil. Data is not available for all major oilseeds and oils. Hence, the listed oilseeds and oils were selected for the study.

The NPC is calculated with the following equation

NPC=Pd/Pb

Where,

NPC=Nominal protection coefficient of the commodity.

Pd=Domestic price of the commodity

Pb=Border price (or) reference price of the commodity after taking care of transportation and marketing expenses.

In case of exportable hypothesis, if NPC is less than 0.5, the commodity under consideration is highly export competitive, and if it is between 0.5 to 1.0 the commodity is moderately export competitive, and >1 the commodity is non-export competitive (i.e., import competitive). In case of importable hypothesis, if NPC is less than 0.5 the commodity under consideration is highly import competitive, and if it is between 0.5 to 1.0 the commodity is moderately import competitive, and >1the commodity is non-import competitive i.e., export competitive which is a desirable situation to the economy.

Under nominal protection coefficient (importable hypothesis), groundnut seed and oil, rapeseed &mustard seed, soybean seed and sunflower seed were selected for the period 1990-91 to 2015-16. Under exportable hypothesis, rapeseed &mustard oil, linseed oil, castor oil, soybean seed and oil and sunflower oil were selected**.**

RESULTS AND DISCUSSION

Groundnut seed and oil

The average value of NPC under importable hypothesis for Indian groundnut seed during the period from 1990-91 to 2015-16 was found to be 0.59 indicating its moderate import competitiveness. During the period 1990-91 to 2015-16, highest NPC of 0.91 was recorded during the year 2010-11 indicating its moderate import competitiveness. The lowest NPC of 0.36 was recorded during the year 1994-95. The NPC was observed to be between 0.5 and 1 in most of the years indicating that the commodity was moderately import competitive in the international market during this period. Other remaining years i.e., 1993-94 to 1994-95, 1997-98 and 2004-05 to 2006-07 showed < 0.5 NPC values, indicating that the commodity was highly import competitive in the international market. This was not a desirable situation to our economy (Table1).The values of NPC under importable hypothesis were plotted in Fig 1. The NPC showed the overall mixed trend and it came out to be 0.54 during 2015-16, implying that the export of groundnut seed was not advantageous for India.

The average value of NPC under importable hypothesis for Indian groundnut oil during the period from 1990-91 to 2015-16 was found to be 1.09 indicating its non-import competitiveness. During the period 1990-91 to 2015-16, highest NPC of 2.17 was recorded during 1991-92 indicating its non-import competitiveness.

Table1.Nominal protection coefficients (NPCs) of oilseeds and oils of India (1990-91 to 2015-16)

Year	Groundnut	Groundnut oil	R&M	R&M oil	Linseed oil	Castor oil	Soybean		Soybean oil	Sunflower	Sunflower oil
1990-91	0.51	2.00	7.30	3.48	2.99	0.99	-	1.84	3.73	2.15	2.94
1991-92	0.68	2.17	5.74	2.83	3.25	1.16	-	1.36	3.37	-	2.80
1992-93	0.51	1.65	3.67	1.95	1.95	0.87	-	0.99	2.32	-	1.98
1993-94	0.38	1.31	1.24	1.49	1.77	0.90	-	0.94	1.98	1.11	1.32
1994-95	0.36	0.97	1.34	1.27	1.59	0.74	0.89	1.14	1.37	1.05	1.26
1995-96	0.61	1.13	1.02	1.59	1.57	0.72	0.83	1.03	1.55	1.15	1.49
1996-97	0.52	0.29	1.02	1.43	1.47	0.98	0.89	1.12	1.57	0.95	1.35
1997-98	0.48	0.31	1.01	1.25	1.16	1.39	0.77	0.96	1.49	0.92	1.06
1998-99	0.51	0.32	1.30	2.18	1.38	1.48	0.86	1.10	1.60	0.88	1.58
1999-00	0.59	1.12	1.49	1.93	1.94	1.61	0.78	1.03	2.29	0.89	1.45
2000-01	0.67	1.49	1.28	1.86	1.71	1.63	0.90	0.92	2.54	0.88	1.25
2001-02	0.63	1.25	1.27	1.63	1.44	1.07	1.21	1.08	2.15	1.05	1.52
2002-03	0.65	1.36	1.23	1.52	1.07	0.75	1.23	1.21	1.68	0.95	1.36
2003-04	0.62	0.89	1.22	1.62	1.41	0.75	1.24	1.05	1.37	1.06	1.45
2004-05	0.39	1.03	1.19	2.02	-	0.46	0.75	0.72	0.99	-	-
2005-06	0.40	1.05	1.25	1.82	-	0.47	0.96	0.83	0.87	-	-
2006-07	0.39	1.20	1.07	1.54	-	0.16	0.96	0.84	0.94	1.10	-
2007-08	0.81	1.24	1.10	1.35	1.04	1.10	0.81	0.68	0.95	0.77	-
2008-09	0.54	0.63	0.88	1.00	0.78	1.00	0.68	0.61	0.78	0.78	-
2009-10	0.83	1.01	1.20	1.42	1.36	1.11	1.15	1.06	0.97	1.55	1.32
2010-11	0.91	1.16	1.07	1.21	1.14	1.21	1.05	0.97	1.18	1.09	1.21
2011-12	0.55	0.83	0.77	0.93	0.91	0.82	0.81	0.76	1.16	0.92	1.15
2012-13	0.58	0.82	1.07	1.24	1.36	1.30	0.96	0.92	1.13	0.86	1.15
2013-14	0.88	0.82	0.90	1.23	1.03	1.02	0.98	1.00	1.08	-	1.25
2014-15	0.73	0.99	1.08	1.49	1.08	1.02	1.15	1.16	1.47	-	1.57
2015-16	0.54	1.23	1.39	1.81	-	-	1.38	1.23	1.57	-	1.44
Overall	**0.59**	**1.09**	**1.66**	**1.66**	**1.52**	**0.99**			**1.62**	**0.96**	**1.52**

-Represents non availability of data

The lowest NPC of 0.29 was recorded during the year 1996-97. More than half of the years showed >1 NPC values, indicating that groundnut oil exports are advantageous for our country. NPC values between 0.5 to 1 was observed during 1994-95, 2003-04, 2008-09 and 2011-12 to 2014-15 and it was less than 0.5 for the years 1996-97 to 1998-99 (Table1).The values of NPC under importable hypothesis were plotted in Fig1. The NPC showed over all slight upward trend and it came out to be 1.23 during 2015-16, implying that export of groundnut oil was advantageous for India.

Rapeseed & Mustard and oil

The average value of NPC under importable hypothesis for Indian rapeseed and mustard during the period from 1990-91 to 2015-16 was found to be 1.66 indicating its non import competitiveness and this situation was advantageous to our country. During the period from 1990-91 to 2015-16, highest NPC of 7.30 was recorded during the year 1990-91 indicating its non import competitiveness. The lowest NPC of 0.77 was recorded during the year 2011-12.The NPC values for all years i.e., from 1990-91 to 2015-16 was greater than 1 except in 2008-09, 2011-12 and 2013-14. It indicates that rapeseed and mustard are non import competitive, implying the export of rapeseed and mustard was advantageous to India (Table1).The NPC values under importable hypothesis were plotted in Fig1,which showed overall constant trend but it was greater than unity and it comes out to be 1.39 during 2015-16, implying that export of rapeseed and mustard was very much advantageous for Indian economy.

The average value of NPC under exportable hypothesis for Indian rapeseed and mustard oil during the period 1990-91 to 2015-16 was found to be 1.66 indicating its non export competitiveness. The highest NPC of 3.48 was recorded during the year 1990-91, indicating its non export competitiveness. It was of course, not a desirable situation to our economy. The lowest NPC of 0.93 was recorded during the year 2011-12, indicating its moderate export competitiveness. The NPC values were >1 for all the years, except 2011-12 because the domestic prices are higher than international prices hence import from other countries gives more benefits rather than export. It implies that non export competitiveness and export of this commodity was not advantageous for India (Table1).The values of NPC under exportable hypothesis were plotted in Fig2 which showed downward trend and it came out to be 1.81 during 2015-16.The NPC values were more than one for all the years except in 2011-12, implying that the export of this commodity was not advantageous for our country.

Linseed oil

The average value of NPC under exportable hypothesis during the period 1990-91 to 2014-15 was found to be 1.52 indicating its non export competitiveness. During the period 1990-91 to 2014-15, highest NPC of 3.25 was recorded during the year 1991-92.The lowest NPC of 0.78 was recorded during the year 2008-09, indicating its moderate export competitiveness. The NPC values for all the years were greater than one except during 2008-09 and 2011-12, indicating its non export competitiveness. This is not a desirable situation for our economy (Table1).The values of nominal protection coefficient (NPC) under exportable hypothesis plotted in Fig2 showed that the NPC exhibits overall downward trend and it comes out to be 1.08 during 2014-15.The NPC values for all the years were greater than one except during 2008-09 and 2011-12, indicating its non export competitiveness, implying that the export of this commodity was not advantageous for India.

Castor oil

The average value of NPC under exportable hypothesis for Indian castor oil during the period 1990-91 to 2014-15 was found to be 0.99 indicating its moderate export competitiveness. During the period 1990-91 to 2014-15, highest NPC of 1.63 was recorded during the year 2000-01 indicating its non export competitiveness. The lowest NPC of 0.16 was recorded during the year 2006-07, indicating its high export competitiveness. Almost half of the selected years showed 0.5 to 1 NPC values implying its moderate export competitiveness. The values of nominal protection coefficients (NPC) under exportable hypothesis were plotted in Fig2. The NPC showed a mixed trend and it came out to be 1.02 during 2014-15 with overall variation between 0.5 to 1, indicating

Fig1. Nominal protection coefficients (NPCs) of oilseeds and oils exports of India under importable hypothesis (1990-91 to 2015-16).

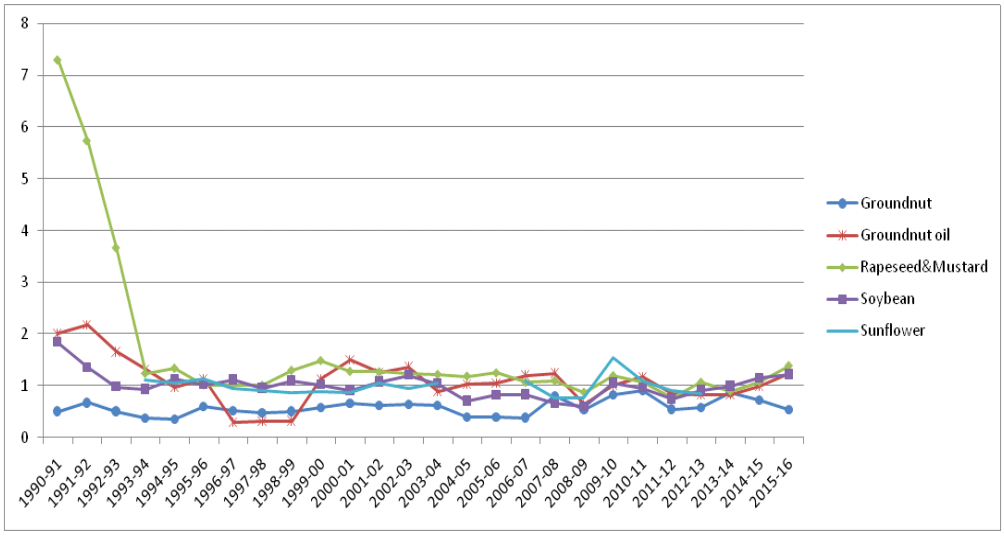
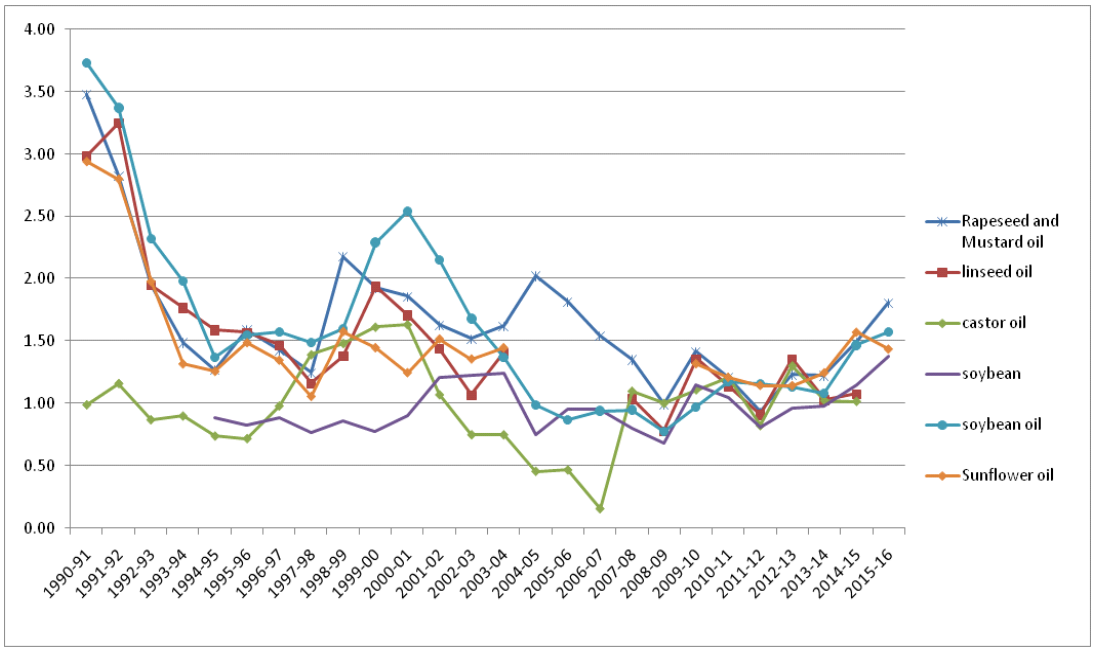


Fig 2. Nominal protection coefficients (NPCs) of oilseeds and oils exports of India under exportable hypothesis (1990-91 to 2015-16)



its moderate export competitiveness in the international market and its partial advantage to the Indian economy.

Soybean seed and oil

The average value of NPC under importable hypothesis for Indian soybean during the period 1990-91 to 2015-16 was found to be 1.02 indicating its non import competitiveness and its advantageous situation to our Indian economy. During the period from 1990-91 to 2015-16, highest NPC of 1.84 was recorded during the year 1990-91 indicating its non import competitiveness. The lowest NPC of 0.61 was recorded during the year 2008-09. Out of the 26 selected years, more than half of the years i.e., 14 selected years showed >1 NPC values indicating that the commodity was non import competitive in the international market. The other remaining years i.e., 12 selected years showed 0.5 to 1 NPC values indicating that the commodity was moderate import competitive in the international market (Table1).The average value of NPC under exportable hypothesis for Indian soybean during the period from 1994-95 to 2015-16 was found to be 0.97 indicating its moderate export competitiveness. During the period 1994-95 to 2015-16, highest NPC of 1.38 was recorded during the year 2015-16, indicating its non export competitiveness in the international market. Almost 2/3 of selected years showed 0.5 to 1 NPC values, indicating its moderate export competitiveness (Table1).

The values of nominal protection coefficients (NPC) under importable hypothesis were plotted in Fig1. By and large the NPC showed over all mixed trend and it came out to be 1.23 during 2015-16.where the NPC was more than unity, implying that the export of this commodity was advantageous for India. On the contrary, where the NPC was 0.5 to 1.0 showed that the export of this commodity was partially advantageous for India. The values of nominal protection coefficient (NPC) under exportable hypothesis were also plotted in Fig2. The NPC values showed overall downward trend and it was 1.38 during 2015-16.The NPC was between 0.5 and 1 for 2/3 of selected years, implying that the export of this commodity was moderately advantageous for India.

The average value of NPC under exportable hypothesis for Indian soybean oil during the period 1990-91 to 2015-16 was found to be 1.62 indicating its non export competitiveness. During the period 1990-91 to 2015-16, highest NPC of 3.73 was recorded during the year 1990-91 indicating its non export competitiveness. The lowest NPC of 0.78 was recorded during the year 2013-14.The NPC values were > 1 for most of the years, indicating its non export competitiveness in the international market. The export of this commodity was not advantageous for India (Table1).The values of nominal protection coefficient (NPC) under exportable hypothesis were plotted in Fig2.NPC shows over all downward trend and it came out to be 1.57 during 2015-16.The NPC was >1 for most of the years implying that the export of this commodity was not advantageous for India.

Sunflower seed and oil

The average value of NPC under importable hypothesis for Indian sunflower during the period 1990-91 to 2012-13 was found to be 0.96 indicating its moderate import competitiveness. The highest NPC of 2.15 was recorded during 1990-91, indicating its non import competitiveness. The lowest NPC of 0.77 was recorded during 2007-08 indicating its moderate import competitiveness in the international market. Overall, more than half of the selected years showed 0.5 to 1 NPC values and other remaining years showed >1 NPC values (Table1).The values of NPC under importable hypothesis plotted in Fig1 showed overall downward trend, which accounted to 0.86 during 2012-13.In this figure, >1 NPC values indicated that the export of this commodity was advantageous and 0.5 to 1 NPC values indicated that the export of this commodity was partially advantageous for India.

The average value of NPC under exportable hypothesis for sunflower oil during the period 1990-91 to 2015-16 was found to be 1.52 indicating its non export competitiveness. The highest NPC of 2.94 was recorded during 1990-91.The lowest NPC of 1.06 was recorded during the year 1999-00, indicating its non export competitiveness in the international market. The NPC values for all the years were >1 indicating non-export competitiveness in the international market, implying that the export of this commodity

was not advantageous for India (Table1).The values of NPC under exportable hypothesis were plotted in Fig2 and showed the overall slight constant trend which came out to be 1.44 during 2015-16. In this figure, all the years showed >1 NPC values, indicating its non-export competitiveness in the international market, implying that export of this commodity was not advantageous for India.

To sum up, the NPC values revealed that India had moderate import competitiveness for the groundnut and sunflower seed, for particular years during the period from 1990-91 through 2015-16. In groundnut, the years 1990-91 to 1992-93, 1995-96 to 1996-97, 1998-99 to 2003-04 and 2007-08 to 2015-16 were observed to have moderate import competitiveness. In case of sunflower, 1996-97 to 2000-01, 2002-03, 2007-08 to 2008-09 and 2011-12 to 2012-13 were having moderate import competitiveness.

India has moderate export competitiveness for castor oil and soybean from 1990-91 to 2015-16. In castor oil, 1990-91, 1992-93 to 1996-97, 2002-03 to 2003-04 and 2011-12 were having moderate export competitiveness. In soybean, 1994-95 to 2000-01, 2004-05 to 2008-09 and 2011-12 to 2013-14 were having moderate export competitiveness The results showed that, under importable hypothesis, NPC was >1 for groundnut oil, rapeseed & mustard and soybean (more than half of the selected years) indicating that these oilseeds and oils are non-import competitive in the international market. This is an advantageous situation to Indian economy (Ramesh Chand 2002, Mruthunjaya and Chauhan 2003 and Karnool et al. 2007).

Under importable hypothesis, NPC is between 0.5 and 1 for groundnut and sunflower (more than half of the selected years) indicating that these are moderately import competitive in the international market(Ramesh Chand 2002, Mruthunjaya and Chauhan 2003, Gurudev Singh and Asokan 2000 and Karnool et al. 2007).

Under exportable hypothesis NPC is between 0.5 and 1 for castor oil (almost half of the selected years) and soybean indicating that these two commodities are moderately export competitive in the international market (Chaturvedi and Chaurasia 1999, Gulati etal. 1994). This is a partial advantageous situation to Indian economy.

Under exportable hypothesis, NPC is > 1 for rapeseed mustard oil, linseed oil, soybean oil and sunflower oil indicating that these oils are non export competitive in the international market. This is not an advantageous situation to Indian economy.

CONCLUSION AND POLICY IMPLICATIONS

India has moderate export competitiveness in case of soybean and castor oil, while it has moderate import competitiveness in case of groundnut and sunflower. Studies have to be conducted to explore the export potential of selected oilseeds and oils. Researchers can also focus on the significant reduction of the production cost of oil seed crops, increasing the yield, improving the quality of produce etc. For increased export of oilseeds and oils, eco-friendly production i.e., organic farming and development of technology to reduce the effect of residues is envisaged.

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